Approximately 300 trucks operated in the construction area at one time. Thanks to road closures, drivers reached the worksite safely and avoided construction-related traffic bottlenecks that can compromise the quality of materials.

GEORGIA I-285 Resurfacing Project

LIVING FOR THE WEEKEND

I-285 can make or break a drive in the Atlanta area, so, in 2001, motorists steeled themselves for traffic tie-ups when milling and inlay reconstruction was planned for the stretch of road between I-675 and I-20. Core samples of portions of the roadway showed that asphalt and sublayers were deteriorating due to high traffic volume and 20-year-old pavement. Engineers agreed that resurfacing was needed on all eight lanes, shoulders, and ramps.

The Georgia Department of Transportation (GDOT) was determined to alleviate commuter concerns and use innovative contracting and construction methods to minimize disruption from the project. GDOT and the Federal Highway Administration (FHWA) developed a plan to complete the work in significantly less time than originally anticipated, and for less money than initially budgeted.

The agency's decisions resulted in rapid delivery of a better, safer, more cost-efficient roadway – providing owner agencies nationwide with ideas and inspiration central to the Highways for LIFE concept.

Requirement, Response, Reduced Impact

The Georgia project required a 25.4-centimeter (10-inch) mill and inlay, all the way to the old PCC pavement. The unusually deep mill was prompted by a stripped layer of asphalt that had been placed over the pavement in the late 1970s. The inlay consisted of approximately 17.8 centimeters (7 inches) of SuperpaveTM, 3.8 centimeters (1.5 inches) of stone matrix asphalt, and 3.2 centimeters (1.25 inches) of coarse, open-graded friction course. In addition to the pavement reconstruction, conduits would be added and guard rails replaced.

If GDOT had chosen traditional construction methods, a project of this scope might have taken two years, snarling traffic in an already busy corridor that easily saw over 125,000 vehicles per day, 20 percent in the form of commercial trucks. Choosing to put customer needs first, GDOT and FHWA partnered with contractors, brainstorming ways to cut construction

time while maintaining superior quality standards. "The goal," according to Georgia DOT Construction Engineer James McGee, "was to get in, get out, and stay out," the requirements of which make the I-285 resurfacing project a Highways for LIFE success story.

Ultimately, the GDOT team agreed to a step unprecedented in the State: shut down I-285, one direction at a time, on weekends only. McGee said, "By closing I-285 in the direction of the work and detouring traffic, we were able to accomplish the work in a much shorter amount of time, which caused less overall impact on the traveling public."

Information Campaign Targets Safety and Congestion

The unprecedented scope of lane closures made getting the word out a top priority for the project. Team leaders launched a widespread public outreach campaign to ensure that local residents and out of town drivers were well aware of the plan.

In addition, GDOT orchestrated detours onto I-75 and I-20 to bypass I-285. The extent of the closures was heavily publicized: work would take place on weekends only, following the end-of-week rush hour. Crews would begin on Fridays at 9:00 p.m. and wrap up no later than Monday mornings at 5:00 a.m. Holiday weekends would be free of construction impacts.

Coordination and Collaboration

Two contractors who normally compete against one another for contracts, E.R. Snell Contractor, Inc. and Shepherd Construction Company, Inc., came together to place a single bid on the project, recognizing the tremendous scope and demands of the project. Numerous subcontractors were tapped to assist.

McGee explained the benefits of the innovative contracting approach this way: "Having two contractors join together to form a team meant we had three to four times the amount of equipment and materials we would have had with one. This allowed us to complete the project on time, or in this case, even faster."

Once the team had been established, coordination and cooperation were key. Over the course of a weekend, as many as 300 trucks operated onsite: 130 to haul away 250,000 tons of milled material, 130 to place 255,000 tons of asphalt, and 40 for a trenching operation to install fiber optic conduit. Using four pavers and eight milling machines, contractors paved an average of 12.9 kilometers (eight lane miles) of the deep mill and inlay each weekend.

The team held to its deadline of opening the road by 5:00 a.m. on Monday mornings each week so rush hour traffic could be up and running without delays. Excellent planning and a collaborative approach enabled team members to exceed the goal every weekend – the road was nearly always opened by 9:00 p.m. on Sundays. The milling and paving portion of the project was completed in only 12 weekends – six in each direction.

On Center Stage: Quality Construction and Safety

Even while meeting or beating accelerated construction goals, the team maintained high standards for quality. With roads closed to the public, trucks delivering construction materials got through quickly, without having to maneuver through traffic, ensuring a constant supply of fresh material. "As a result," Walter Boyd, a former transportation engineer with FHWA's Georgia Division, explained at the time, "pavement smoothness and quality were excellent because the pavement machines ran for hours at a time without stopping."

Safety remained front and center throughout the construction process. Despite demands for rapid results, workers accomplished more in the safe work zone environment afforded by road closures. Drivers, too, stayed well out of harm's way.

Reconstruction also gave GDOT the opportunity to improve shoulders, upgrade guardrails, and install conduit for an advanced transportation management system, enhancing the long-term service of the roadway.

The entire I-285 project was completed in spring 2002.

Saving Time and Money

Time is money, and by challenging traditional paradigms, GDOT saved both. While an exact dollar figure is difficult to calculate, McGee explained project economies this way, "Dollar-wise, it's difficult to say how much was saved. It's hard to put a price tag on a project that would normally have taken two years, but was finished in 12 weekends. Asphalt costs were the same, but traffic control costs were significantly decreased because of the shortened time frame."

Project leaders also noted that drivers were spared the time and financial costs associated with prolonged congestion.

Lessons Learned

Despite their success, GDOT engineers and managers learned a few lessons they would encourage other departments to consider when tackling major projects.

First, the team recommends providing for maximum efficiency of ramp widths on detours. One detour lane was 30 feet wide, but carried only one lane of traffic. Striping for two lanes would have helped traffic flow more freely.

Another lesson: an active media campaign advising motorists of road closures minimizes construction-related congestion. While the idea of completely closing a road in one direction is daunting, the decision proved a success thanks to well-executed outreach.

A third lesson centered on minor issues involving the project laboratory keeping pace with compactions. In the Georgia project, asphalt arrived from 10 different plants and was mixed together, causing minor headaches for lab technicians. McGee recommends using the highest theoretical of all the mix types on each machine for maximum results.

A Textbook Case

One measure of I-285's success was recognition by the public/private National Partnership for Highway Quality (NPHQ), which awarded the project its 2003 National Achievement Award (State Level), citing the roles of GDOT, its Maintenance Office, Construction Manager James McGee, Shepherd Construction Company, Inc. and E. R. Snell Contractor, Inc. NPHQ's Executive Director, Bob Templeton, commented at the time, "The Interstate

Weekend full lane closures offer workers a safer and more productive environment.

reopened in record time because the Georgia team kept the customers' needs front and center. Significantly, quality was not sacrificed to get the job done quickly, and Georgia has some of the most stringent pavement quality control and quality assurance requirements in the nation. The I-285 resurfacing project was a textbook case of quality management from start to finish."

GDOT put people first, choosing accelerated construction and public information to cement a partnership with its customers. Progressive contracting created another key partnership: an alliance between two competing firms that captured the best of each for a common goal. The result: better service from a critical roadway – and a textbook example of the benefits to be gained from building Highways for LIFE.